

RESPONSE AND REQUEST FOR RECONSIDERATION

In response to the Office Action of July 18, 2006, Applicants hereby request the Examiner to reconsider the claims in view of the present amendments and remarks.

Applicants have amended independent claims 1 and 19 by specifying that the phosphite is defined as an alkyl phosphite rather than a hydrocarbyl phosphite as previously claimed. Support for this amendment is found in the specification on paragraph 18. This amendment serves to focus the claims on those specific phosphites that contain alkyl groups, rather than other, more broadly defined, hydrocarbyl groups.

Dependent claims 2 and 17 have been amended to specify that the phosphite definition is consistent with independent claims 1 and 19. Specifically, claims 2 and 17 specify the phosphite is an alkyl phosphite.

Applicants have added a new independent claim 23 and new dependent claims 24 and 25. Each of these claims is substantially the same as independent claim 1, except the alkyl phosphite is defined as "an alkyl phosphite, wherein the alkyl group contains 14 to 20 carbon atoms" or "12 to 30 carbon atoms." Support for the phosphite definition specifying the alkyl group contains 14 to 20 or 12 to 30 carbon atoms is found in paragraph 18 of the specification. No elements other than the nature and chain length of the alkyl groups have been amended.

Applicants submit that the amended claims are fully supported by the specification and do not add subject matter. Moreover, the claims as amended are novel and non-obvious over the cited prior art.

Applicants note with gratitude that the Examiner has withdrawn all objections and rejections, except those described in the office action dated July 18, 2006.

The Examiner, however, maintained that claims 1, 2, 4, 5, 8-10, 14 and 16-22 still failed to meet the requirements of 35 U.S.C. 103(a) over Sumiejski and Vinci et al. Further the Examiner maintained that claims 6, 7 and 15 still failed to meet the requirements of 35 U.S.C. 103(a) over Sumiejski and Vinci et al. and Tagliamonte.

The Examiner was of the position that the evidence supplied in the declaration by J. Sumiejski on May 1, 2006, was insufficient to establish unexpected or surprising results for the claimed invention. In particular, the data was deemed insufficient to rebut a prima facie case of obviousness since the data was believed to be not commensurate in scope with the claimed invention. Applicants respectfully traverse the Examiner's position.

Applicants submit that the experimental data provided in the declaration by Sumiejski is commensurate in scope with the invention as it is presently defined by the claims. In particular, Applicants presented data from an alkyl phosphite with a C14 alkyl group, as it provides a meaningful comparison of the lower limit of the present invention, presently set at C12, with the prior art. A person skilled in the art would expect that a C12-alkyl phosphite and the C14-alkyl phosphite actually tested would have similar performance because both alkyl chains have similar properties. As an example of this similarity, the

alcohols which correspond to these and longer alkyl chains are solids at around ambient temperature (about 23 °C). In contrast, alcohols with alkyl chains with 10 or fewer carbon atoms are typically liquids. The attached pages from the CRC Handbook of Chemistry and Physics, 75th Edition illustrates the melting points for decanol, dodecanol and tetradecanol. It will also be recognized that the longer chain alkyl groups share the property of increasing oil solubility, which is important for a composition designed for use as a lubricant.

It is therefore believed that properties of alkyl chains of 12 and more carbon atoms are sufficiently different from those in the reference, below 12, that the material having a C14 alkyl chain reasonably represents the class of materials with longer chain alkyl groups. As a consequence, while the declaration compared a C14-alkyl phosphite with the C6-alkyl phosphite of the reference, similar performance advantages would be expected from alkyl groups such as C12, or C14, or C16, C18, C20 or higher alkyl groups. Hence the invention example demonstrated in the declaration is commensurate with the scope of the alkyl phosphite of the invention as defined in claim 1, in terms of the nature and length of the alkyl groups.

The C14 test sample even more clearly supports the patentability of the narrower ranges of carbon atoms set forth in new claims 23, 24, and 25, and separate consideration for the subject matter of these claims is respectfully requested.

Accordingly, Applicants request the Examiner to find the experimental data provided to be commensurate with the scope of the independent claims and find all claims allowable.

With regard to the example presented in the declaration, the Examiner has further indicated that only one type of each component (b), (c) and (d) is exemplified. Applicants respectfully submit that further experimental exemplification of these components is not legally required. Components (b), (c), and (d), while required components of the lubricating composition, are only of secondary importance when considering the technical problem of reducing wear and shudder that is solved principally by component (a), i.e., the alkyl phosphite. And in order to determine whether an invention exhibits unexpected advantages over a prior art reference, it is only required to compare the claimed invention with the closest teaching of the prior art. The proper comparison of the prior art with a lubricating composition of the present invention is one that requires the fewest changes to the lubricating composition. This minimizes the number of variables altered and most clearly demonstrates the advantages of the invention. Applicants have closely reviewed the prior art and selected the closest explicit teaching (i.e., an example) to the present invention.

It is not legally necessary to compare variants of the claimed invention with hypothetical variations of the prior art that are not in fact disclosed. Thus, it is not required to test samples with variations of (b), (c), and (d) against modifications of the prior art in which (b), (c), and (d) are similarly varied. If Applicants were required to compare the present invention against such hypothetical, imagined, or reconstructed prior art compositions, it would not be a valid or useful or legally meaningful comparison. This is in part because

multiple variables would be changed, and in part because the comparison would no longer be against the actual prior art. Therefore, Applicants' obligation is to compare the invention only against the closest prior art and not against hypothetical, imagined, or reconstructed prior art. Accordingly, Applicants respectfully request the Examiner to withdraw objections of improper breadth of components (b), (c) and (d).

For the foregoing reasons it is submitted that the present claims are unobvious and in condition for allowance. The foregoing remarks are believed to be a full and complete response to the outstanding office action. Therefore an early and favorable reconsideration is respectfully requested. If the Examiner believes that only minor issues remain to be resolved, a telephone call to the Undersigned is suggested.

The number of claims, after amendment, is increased from the original 22 to 24. Please charge the fee for the additional 2 claims, believed to be $2 \times \$50 = \100.00 , to deposit account 12-2275 (The Lubrizol Corporation). The number of independent claims is now 3, for which no additional fee is due. Any additional required fees, or any insufficiency or overpayment of fees, should be charged or credited to this same account.

Respectfully submitted,

/ David M. Shold # 31664 /

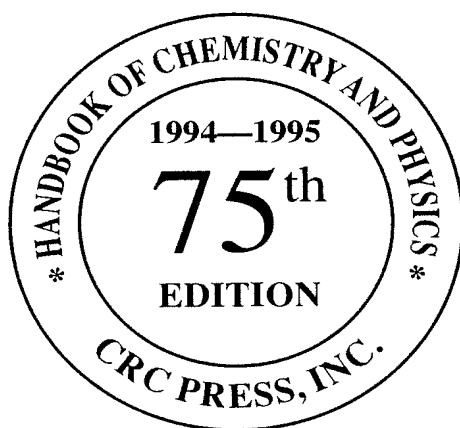
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PHYSICAL CONSTANTS OF ORGANIC COMPOUNDS (continued)

No.	Name Synonym	Mol. Form. Mol. Wt.	CAS RN mp/°C	Merck No. bp/°C	Beil. Ref. den/g cm ⁻³	Solubility n _D
5066	Decanoic acid, methyl ester	C ₁₁ H ₂₂ O ₂ 186.29	110-42-9 -18	224	4-02-00-01044 0.8730 ²⁰	H ₂ O 1; EtOH 4; eth 4; ctc 2 1.4259 ²⁰
5067	Decanoic acid, 1-methylethyl ester	C ₁₃ H ₂₆ O ₂ 214.35	2311-59-3	121 ¹⁰	4-02-00-01045 0.8543 ²⁰	1.4221 ²⁵
5068	Decanoic acid, 2-octyl-	C ₁₈ H ₃₆ O ₂ 284.48	619-39-6 38.5	215 ¹³	4-02-00-01254 0.8447 ⁷⁰	eth 4; EtOH 4
5069	Decanoic acid, propyl ester	C ₁₃ H ₂₆ O ₂ 214.35	30673-60-0	128.5 ¹⁰	4-02-00-01045 0.8623 ²⁰	1.4280 ²⁰
5070	1-Decanol Capric alcohol	C ₁₀ H ₂₂ O 158.28	112-30-1 6.9	2847 231.1	4-01-00-01815 0.8297 ²⁰	H ₂ O 1; EtOH 5; eth 5; ace 5 1.4372 ²⁰
5071	2-Decanol, (±)- 2-Decanol (DL)	C ₁₀ H ₂₂ O 158.28	74742-10-2 -2.4	211	4-01-00-01823 0.8250 ²⁰	EtOH 3; eth 5; ace 5; bz 3 1.4326 ²⁵
5072	4-Decanol 1-Propylheptyl alcohol	C ₁₀ H ₂₂ O 158.28	2051-31-2 -11	210.5	4-01-00-01824 0.8261 ²⁰	H ₂ O 1; EtOH 3; ctc 3 1.4320 ²⁰
5073	1-Decanol, 10-chloro-	C ₁₀ H ₂₁ ClO 192.73	51309-10-5	185.9 ¹⁵	4-01-00-01821 0.9630 ²⁵	eth 4; EtOH 4 1.4578 ²⁰
5074	1-Decanol, 10-fluoro- 10-Fluoro-1-decanol	C ₁₀ H ₂₁ FO 176.27	334-64-5 22	136.7 ¹⁵	4-01-00-01821 0.919 ²⁰	eth 4; EtOH 4 1.4322 ²⁵
5075	2-Decanone Methyl octyl ketone	C ₁₀ H ₂₀ O 156.27	693-54-9 14	210; 96 ¹²	4-01-00-03367 0.8248 ²⁰	H ₂ O 1; EtOH 3; eth 3; ctc 2 1.4255 ²⁰
5076	3-Decanone Ethyl heptyl ketone	C ₁₀ H ₂₀ O 156.27	928-80-3 2.5	203	4-01-00-03368 0.8251 ²⁰	EtOH 3; eth 3; ctc 3 1.4252 ²⁰
5077	4-Decanone Hexyl propyl ketone	C ₁₀ H ₂₀ O 156.27	624-16-8 -9	206.5	4-01-00-03368 0.824 ²⁰	H ₂ O 1; EtOH 5; eth 5 1.4240 ²¹
5078	Decanoyl chloride Caprinoyl chloride	C ₁₀ H ₁₉ ClO 190.71	112-13-0 -34.5	95	4-02-00-01050 0.919 ²⁵	eth 3; ctc 3 1.4410 ²⁰
5079	Decasiloxane, dicosamethyl- Decasiloxane, dicosamethyl	C ₂₂ H ₄₈ O ₈ Si ₁₀ 755.62	556-70-7	183.4	3-04-00-01881 0.925 ²⁰	bz 4; lig 4 1.3988 ²⁰
5080	2-Decenal	C ₁₀ H ₁₈ O 154.25	3913-71-1	230	4-01-00-03511 0.845 ¹⁷	1.4533 ¹⁷
5081	3-Decenal	C ₁₀ H ₁₈ O 154.25	58474-80-9	93.4 ¹⁴	4-01-00-03512 0.850 ¹⁵	1.4462 ¹⁵
5082	1-Decene	C ₁₀ H ₂₀ 140.27	872-05-9 -66.3	170.5	3-01-00-00858 0.7408 ²⁰	H ₂ O 1; EtOH 5; eth 5 1.4215 ²⁰
5083	4-Decene	C ₁₀ H ₂₀ 140.27	19689-18-0	170.6	4-01-00-00902 0.7404 ²⁰	1.4243 ²⁰
5084	5-Decene, (E)-	C ₁₀ H ₂₀ 140.27	7433-56-9 -73	171	4-01-00-00902 0.7401 ²⁰	H ₂ O 1; EtOH 5; eth 5; ctc 2 1.4243 ²⁰
5085	5-Decene, (Z)-	C ₁₀ H ₂₀ 140.27	7433-78-5 -112	171; 73 ²⁰	3-01-00-00859 0.7445 ²⁰	H ₂ O 1; EtOH 5; eth 5; ctc 2 1.4258 ²⁰
5086	1-Decene, 2-bromo- 2-Bromo-1-decene	C ₁₀ H ₁₉ Br 219.16	3017-67-2	115.6 ²²	3-01-00-00859 1.0844 ²⁰	1.4629 ²⁰
5087	2-Decene, 1-bromo- 1-Bromo-2-decene	C ₁₀ H ₁₉ Br 219.16	14304-30-4	121 ¹⁷	4-01-00-00902 1.074 ¹⁸	lig 4 1.4716 ¹⁸
5088	2-Decenoic acid Δ ² -Decenoic acid	C ₁₀ H ₁₈ O ₂ 170.25	3913-85-7 12	165 ¹⁵	4-02-00-01606 0.9280 ¹⁸	1.4616 ²⁰
5089	3-Decenoic acid	C ₁₀ H ₁₈ O ₂ 170.25	15469-77-9 18	154.63 ¹¹	4-02-00-01606 0.914 ¹⁵	1.4510 ¹⁸
5090	4-Decenoic acid Deconic acid telomer	C ₁₀ H ₁₈ O ₂ 170.25	26303-90-2	149 ¹³	4-02-00-01607 0.9197 ²⁰	bz 4; eth 4 1.4497 ²⁰
5091	9-Decenoic acid Caprolic acid	C ₁₀ H ₁₈ O ₂ 170.25	14436-32-9	158 ²¹ ; 142 ⁴	4-02-00-01605 0.9238 ¹⁵	eth 4; EtOH 4 1.4507 ¹⁵
5092	9-Decen-1-ol Decylenic alcohol	C ₁₀ H ₂₀ O 156.27	13019-22-2	236	4-01-00-02184 0.876 ²⁵	1.4480 ²⁰
5093	3-Decen-2-one Heptylidene acetone	C ₁₀ H ₁₈ O 154.25	10519-33-2	102.3 ^{15,3}	4-01-00-03512 0.8473 ²⁰	1.4480 ²⁰
5094	1-Decen-3-yne	C ₁₀ H ₁₆ 136.24	33622-26-3	76 ²⁰	4-01-00-01105 0.7873 ²⁰	1.4620 ²⁰
5095	1-Decen-4-yne	C ₁₀ H ₁₆ 136.24	24948-66-1	73.4 ²²	3-01-00-01049 0.7880 ²⁰	1.445 ²⁰
5096	2-Decen-4-yne	C ₁₀ H ₁₆ 136.24	116668-40-7	55 ⁵	3-01-00-01049 0.7850 ²⁵	1.4609 ²⁵
5097	1-Decyne Octylacetylene	C ₁₀ H ₁₈ 138.25	764-93-2 -44	174	4-01-00-01054 0.7655 ²⁰	H ₂ O 1; EtOH 3; eth 3; os 3 1.4265 ²⁰
5098	3-Decyne	C ₁₀ H ₁₈ 138.25	2384-85-2	177	4-01-00-01055 0.7619 ²⁵	1.4315 ²⁰
5099	4-Decyne	C ₁₀ H ₁₈ 138.25	2384-86-3	74.5 ¹⁹	3-01-00-01017 0.772 ¹⁷	1.436 ¹⁷
5100	5-Decyne Dibutylacetylene	C ₁₀ H ₁₈ 138.25	1942-46-7 -73	177; 78.8 ²⁵	4-01-00-01055 0.7690 ²⁰	H ₂ O 1; EtOH 3; eth 3 1.4331 ²⁰
5101	4-Decyne, 3,3-dimethyl- 3,3-Dimethyl-4-decyne	C ₁₂ H ₂₂ 168.31	70732-45-5	86 ²⁰	3-01-00-01026 0.7731 ²⁰	1.4399 ²⁰
5102	Deltamethrin Cyano(3-phenoxyphenyl)methyl-3-(2,2-dibromoethenyl)-2,2-dimethylcyclopropanecarboxylate	C ₂₂ H ₁₉ Br ₂ NO ₃ 505.21	52918-63-5 99	2869		
5103	Demeton S methyl Phosphorothioic acid, S-[2-(ethylthio)ethyl] O,O-dimethyl ester	C ₈ H ₁₅ O ₃ PS ₂ 290.29	919-86-8	89 ^{0,15} ; 118 ¹	1.207 ²⁰	

PHYSICAL CONSTANTS OF ORGANIC COMPOUNDS (continued)

No.	Name Synonym	Mol. Form. Mol. Wt.	CAS RN mp/°C	Merck No. bp/°C	Beil. Ref. den/g cm ³	Solubility n _D
11619	Tetradecanenitrile Myristonitrile	C ₁₄ H ₂₇ N 209.38	629-63-0 19	226 ¹⁰⁰ , 119 ¹	4-02-00-01139 0.8281 ¹⁹	H ₂ O 1; EtOH 5; eth 5; ace 5 1.4392 ²³
11620	1-Tetradecanesulfonic acid Tetradecylsulfonic acid	C ₁₄ H ₃₀ O ₃ S 278.46	7314-37-6 65		4-04-00-00066 0.9996 ²⁵	H ₂ O 4
11621	1-Tetradecanethiol	C ₁₄ H ₃₀ S 230.46	2079-95-0	176-80 ²²	4-01-00-01867 0.8469 ²⁰	H ₂ O 1; EtOH 3; eth 3; ctc 3 1.4597 ²⁰
11622	Tetradecanoic acid Myristic acid	C ₁₄ H ₂₈ O ₂ 228.38	544-63-8 53.9	6246 250 ¹⁰⁰	4-02-00-01126 0.8622 ⁵⁴	H ₂ O 1; EtOH 3; eth 2; ace 3 1.4723 ⁷⁰
11623	Tetradecanoic acid, anhydride	C ₂₈ H ₅₄ O ₃ 438.73	626-29-9 53.4		4-02-00-01138 0.8502 ⁷⁰	eth 4; EtOH 4 1.4335 ⁷⁰
11624	Tetradecanoic acid, ethyl ester	C ₁₆ H ₃₂ O ₂ 256.43	124-06-1 12.3	295	4-02-00-01131 0.8573 ²⁵	H ₂ O 1; EtOH 3; eth 2; ctc 3 1.4362 ²⁰
11625	Tetradecanoic acid, methyl ester	C ₁₅ H ₃₀ O ₂ 242.40	124-10-7 19	295; 155 ⁷	4-02-00-01131 0.8671 ²⁰	H ₂ O 1; EtOH 5; eth 5; ace 5 1.4254 ⁵
11626	Tetradecanoic acid, 1-methylethyl ester Isopropyl myristate	C ₁₇ H ₃₄ O ₂ 270.46	110-27-0	5103 193 ²⁰ , 140 ²	4-02-00-01132 0.8532 ²⁰	H ₂ O 1; EtOH 3; eth 3; ace 4 1.4325 ²⁵
11627	Tetradecanoic acid, phenylmethyl ester	C ₂₁ H ₃₄ O ₂ 318.50	31161-71-4 20.5	229.31 ¹¹	2-06-00-00417 0.9293 ²⁵	bz 4; eth 4; EtOH 4; chl 4
11628	Tetradecanoic acid, 1,2,3-propanetriyl ester Trimyristin	C ₄₅ H ₈₆ O ₆ 723.17	555-45-3 56.5	9638 311	4-02-00-01135 0.8848 ⁶⁰	H ₂ O 1; EtOH 2; eth 3; ace 3 1.4428 ⁶⁰
11629	Tetradecanoic acid, propyl ester	C ₁₇ H ₃₄ O ₂ 270.46	14303-70-9	147 ²	4-02-00-01132 0.8592 ²⁰	ace 4; bz 4; eth 4; EtOH 4 1.4356 ²⁵
11630	1-Tetradecanol Tetradecyl alcohol	C ₁₄ H ₃₀ O 214.39	112-72-1 39.5	6248 289	4-01-00-01864 0.8236 ³⁸	H ₂ O 1; EtOH 4; eth 4; ace 4
11631	2-Tetradecanol	C ₁₄ H ₃₀ O 214.39	4706-81-4 34	284	4-01-00-01867 0.8315 ²⁰	1.4444 ²⁰
11632	3-Tetradecanol	C ₁₄ H ₃₀ O 214.39	1653-32-3 31.5	173 ²⁵ , 146 ¹⁰	4-01-00-01868 0.8098 ⁵³	bz 4; eth 4; EtOH 4 1.4340 ⁴⁵
11633	2-Tetradecanone Dodecylmethylketone	C ₁₄ H ₂₈ O 212.38	2345-27-9 33.5	205 ¹⁰⁰ , 134 ¹³	4-01-00-03389	H ₂ O 1; EtOH 3; ace 3; os 3
11634	3-Tetradecanone	C ₁₄ H ₂₈ O 212.38	629-23-2 34	152 ¹⁶	4-01-00-03389	H ₂ O 1; EtOH 3; ace 3; os 3
11635	Tetradecanoyl chloride Myristoyl chloride	C ₁₄ H ₂₇ ClO 246.82	112-64-1 -1	171 ¹⁶	4-02-00-01138 0.9078 ²⁵	eth 3
11636	1-Tetradecene	C ₁₄ H ₂₈ 196.38	1120-36-1 -12	233	4-01-00-00924 0.7745 ²⁵	H ₂ O 1; EtOH 4; eth 4; bz 3 1.4351 ²⁰
11637	4-Tetradecenoic acid Tuduic acid	C ₁₄ H ₂₆ O ₂ 226.36	544-65-0 18.5	185-8 ¹³	4-02-00-01626 0.9024 ²⁰	bz 4; peth 4 1.4559 ²⁰
11638	5-Tetradecenoic acid Physoteric acid	C ₁₄ H ₂₆ O ₂ 226.36	544-66-1 20	190-5 ¹⁵	3-02-00-01373 0.9046 ²⁰	1.4552 ²⁰
11639	9-Tetradecenoic acid	C ₁₄ H ₂₆ O ₂ 226.36	13147-06-3 -4	144 ^{0.6}	4-02-00-01626 0.9018 ²⁰	1.4519 ²⁰
11640	2-Tetradecyne	C ₁₄ H ₂₆ 194.36	638-60-8 6.5	252.5	0-01-00-00262 0.8000 ²⁰	eth 4; EtOH 4
11641	7-Tetradecyne	C ₁₄ H ₂₆ 194.36	35216-11-6	144 ³⁰	3-01-00-01027 0.7991 ²⁰	eth 4; EtOH 4 1.4330 ²⁵
11642	2,5,8,11-Tetraoxadodecane Triglyme	C ₈ H ₁₈ O ₄ 178.23	112-49-2 -45	9604 216	4-01-00-02401 0.986 ²⁰	H ₂ O 4; bz 4 1.4224 ²⁰
11643	2,4,8,10-Tetraoxaspiro[5.5]undecane	C ₇ H ₁₂ O ₄ 160.17	126-54-5 48.3	147 ⁵³ , 68 ¹	5-19-11-00342	H ₂ O 4; ace 4; eth 4; EtOH 4
11644	Tetraphenylene Tetrabenzocyclooctatetraene	C ₂₄ H ₁₆ 304.39	212-74-8 233	sub 200	4-05-00-02773	EtOH 3; eth 2; AcOEt 3; PhNO ₂ 3
11645	Tetraphosphoric acid, hexaethyl ester Ethyl tetraphosphate	C ₁₂ H ₃₀ O ₁₃ P ₄ 506.26	757-58-4 -40	150 dec	1.2917 ²⁷	ace 4; bz 4; EtOH 4 1.4273 ²⁷
11646	Tetrasiloxane, decamethyl- Decamethyltetrasiloxane	C ₁₀ H ₃₀ O ₃ Si ₄ 310.69	141-62-8 -76	2843 194	4-04-00-04119 0.8536 ²⁵	H ₂ O 1; EtOH 2; bz 3; peth 3 1.3895 ²⁰
11647	Tetrasiloxane, 1,1,1,3,5,7,7,7-octamethyl- 1,1,1,3,5,7,7,7-Octamethyltetrasiloxane	C ₈ H ₂₆ O ₃ Si ₄ 282.63	16066-09-4	170	4-04-00-04098 0.8559 ²⁰	1.3854 ²⁰
11648	Tetrasul p-Chlorophenyl 2,4,5-trichlorophenyl sulfide	C ₁₂ H ₆ Cl ₄ S 324.06	2227-13-6			
11649	Tetrasulfide, bis(1,1-dimethylethyl) Di-tert-Butyl tetrasulfide	C ₈ H ₁₈ S ₄ 242.49	5943-35-1 2.3	70 ^{0.2}	4-01-00-01638 1.0690 ²⁰	1.5660 ²⁰
11650	Tetatriacontane	C ₃₄ H ₇₀ 478.93	14167-59-0 72.6	285.4 ³	4-01-00-00597 0.7728 ⁹⁰	1.4296 ⁹⁰
11651	1,2,4,5-Tetrazine sym-Tetrazine	C ₂ H ₂ N ₄ 82.06	290-96-0 99	sub	4-26-00-01710	H ₂ O 3; EtOH 3; eth 3; sulf 3
11652	1H-Tetrazole	CH ₂ N ₄ 70.05	288-94-8 157	sub	4-26-00-01652 1.4060 ²⁰	H ₂ O 2
11653	2H-Tetrazolium, 2,3,5-triphenyl-, chloride Triphenyltetrazolium chloride	C ₁₉ H ₁₅ ClN ₄ 334.81	298-96-4 243 dec	9658	4-26-00-01774	H ₂ O 3; EtOH 3; eth 1; ace 3
11654	5H-Tetrazolo[1,5-a]azepine, 6,7,8,9-tetrahydro- Pentylene-tetrazole	C ₆ H ₁₀ N ₄ 138.17	54-95-5 59.5	7097 194 ¹²	4-26-00-01712	H ₂ O 4; EtOH 4; eth 3; ace 4
11655	4-Thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid, 3,3-dimethyl-7-oxo-6-[(phenylacetyl)amino]- Penicillin G, sodium salt	C ₁₆ H ₁₇ N ₂ NaO ₄ S 356.38	69-57-8	1157	4-27-00-05861	

PHYSICAL CONSTANTS OF ORGANIC COMPOUNDS (continued)

No.	Name Synonym	Mol. Form. Mol. Wt.	CAS RN mp/°C	Merck No. bp/°C	Beil. Ref. den/g cm ⁻³	Solubility η_D
5310	Dodecanoic acid, 2,3-dihydroxypropyl ester, (±)- Glycerol, 1-laurate (DL)	C ₁₅ H ₃₀ O ₄ 274.40	40738-26-9 63		4-02-00-01096 0.9248 ⁹⁷	EtOH 2; eth 4; ace 4; bz 3 1.4350 ⁸⁸
5311	Dodecanoic acid, 1,2-ethanediyl ester Ethylene glycol dilaurate	C ₂₈ H ₅₀ O ₄ 426.68	624-04-4 56.6	4393 188 ²⁰	4-02-00-01094	eth 4; EtOH 4
5312	Dodecanoic acid, ethyl ester Ethyl laurate	C ₁₄ H ₂₈ O ₂ 228.38	106-33-2 -10	3774 271; 154 ¹⁵	4-02-00-01092 0.8618 ²⁰	H ₂ O 1; EtOH 4; eth 5; ctc 2 1.4311 ²⁰
5313	Dodecanoic acid, 2-(2-hydroxyethoxy)ethyl ester Diethylene glycol monolaurate	C ₁₈ H ₃₂ O ₄ 288.43	141-20-8 17.5	3110 >270		EtOH 5; eth 5; ace 5; bz 3
5314	Dodecanoic acid, 2-methyl- Methyl laurate	C ₁₃ H ₂₆ O ₂ 214.35	2874-74-0 22	153 ¹	4-02-00-01121 0.890 ¹⁸	
5315	Dodecanoic acid, methyl ester Methyl laurate	C ₁₃ H ₂₆ O ₂ 214.35	111-82-0 5.2	267	4-02-00-01090 0.8702 ²⁰	H ₂ O 1; EtOH 5; eth 5; ace 5 1.4319 ²⁰
5316	Dodecanoic acid, 1-methylethyl ester	C ₁₅ H ₃₀ O ₂ 242.40	10233-13-3	196 ⁶⁰ , 117 ²	4-02-00-01092 0.8536 ²⁰	eth 4; EtOH 4 1.4280 ²⁵
5317	Dodecanoic acid, phenyl ester Phenyl laurate	C ₁₈ H ₂₈ O ₂ 276.42	4228-00-6 24.5	210 ¹⁵	4-06-00-00618 0.9354 ³⁰	ace 4; eth 4; EtOH 4
5318	Dodecanoic acid, phenylmethyl ester	C ₁₉ H ₃₀ O ₂ 290.45	140-25-0 8.5	209-111 ²	4-06-00-02267 0.9429 ²⁵	bz 4; eth 4; EtOH 4; peth 4 1.4812 ²⁴
5319	Dodecanoic acid, 1,2,3-propanetriyl ester	C ₃₉ H ₇₄ O ₆ 639.01	538-24-9		4-02-00-01098 0.8986 ⁵⁵	H ₂ O 1; EtOH 3; eth 3; ace 4 1.4404 ⁶⁰
5320	Dodecanoic acid, propyl ester Propyl laurate	C ₁₅ H ₃₀ O ₂ 242.40	3681-78-5	205 ⁶⁰ , 124 ²	4-02-00-01092 0.8600 ²⁰	1.4335 ²⁰
5321	1-Dodecanol Lauryl alcohol	C ₁₂ H ₂₆ O 186.34	112-53-8 24	3402 259	4-01-00-01844 0.8309 ²⁴	H ₂ O 1; EtOH 3; eth 3; bz 2
5322	2-Dodecanol	C ₁₂ H ₂₆ O 186.34	10203-28-8 19	252	3-01-00-01793 0.8286 ²⁰	1.4400 ²⁰
5323	3-Dodecanol	C ₁₂ H ₂₆ O 186.34	10203-30-2 25	130 ¹⁵	4-01-00-01854 0.8223 ³²	
5324	6-Dodecanol	C ₁₂ H ₂₆ O 186.34	6836-38-0 30	225; 119 ⁹	3-01-00-01794 0.8201 ⁴⁰	eth 4; EtOH 4
5325	2-Dodecanone Decyl methyl ketone	C ₁₂ H ₂₄ O 184.32	6175-49-1 21	246.5	4-01-00-03382 0.8198 ²⁰	H ₂ O 1; EtOH 3; eth 3; ace 3 1.4330 ²⁰
5326	6-Dodecanone Amyl hexyl ketone	C ₁₂ H ₂₄ O 184.32	6064-27-3 10	112 ⁹	4-01-00-03383	1.4302 ²⁰
5327	1-Dodecanone, 1-phenyl- Dodecanoyl chloride	C ₁₈ H ₂₈ O 260.42	1674-38-0 47	201 ⁹ , 181 ⁵	4-07-00-00847 0.8794 ¹⁸	H ₂ O 1; ace 3; ctc 2 1.4700 ¹⁸
5328	Dodecanoyl chloride	C ₁₂ H ₂₃ ClO 218.77	112-16-3 -17	145 ¹⁸	4-02-00-01103 0.9169 ²⁵	eth 4 1.4458 ²⁰
5329	1,3,6,10-Dodecatetraene, 3,7,11-trimethyl-, (E,E)- α-Farnesene	C ₁₅ H ₂₄ 204.36	502-61-4	3883	3-01-00-01067 0.8410 ²⁰	H ₂ O 1; eth 3; ace 3; peth 5 1.4836 ²⁰
5330	2,6,10-Dodecatrienal, 3,7,11-trimethyl- methylene-, (E)- β-Farnesene	C ₁₅ H ₂₄ O 220.35	19317-11-4	172-41 ⁴	4-01-00-03603 0.8931 ⁸	1.4995
5331	1,6,10-Dodecatriene, 7,11-dimethyl-3- methylene-, (E)- β-Farnesene	C ₁₅ H ₂₄ 204.38	18794-84-8	3884	4-01-00-01133 0.8363 ²⁰	ace 4; eth 4; chl 4 1.4899 ²⁰
5332	1,6,10-Dodecatrien-3-ol, 3,7,11-trimethyl-, [S- (Z)]- 2,6,10-Dodecatrien-1-ol, 3,7,11-trimethyl-, (E,E)-	C ₁₅ H ₂₆ O 222.37	142-50-7	6388	4-01-00-02336 0.8778 ²⁰	EtOH 4; eth 3; ace 3; os 3 1.4898 ²⁰
5333	2,6,10-Dodecatrien-1-ol, 3,7,11-trimethyl-, (E,E)- 2,6,10-Dodecatrien-1-ol, 3,7,11-trimethyl-, (Z,E)-	C ₁₅ H ₂₆ O 222.37	106-28-5	160 ¹⁰	4-01-00-02335 0.8846 ²⁰	H ₂ O 1; EtOH 4; eth 3; ace 1.4877 ²⁰
5334	2,6,10-Dodecatrien-1-ol, 3,7,11-trimethyl-, (Z,E)-	C ₁₅ H ₂₆ O 222.37	3790-71-4	156 ¹² , 120 ^{0.3}	4-01-00-02335 0.8908 ²⁰	ace 4; eth 4; EtOH 4 1.4877 ²⁰
5335	1-Dodecene	C ₁₂ H ₂₄ 168.32	112-41-4 -35.2	213.8	4-01-00-00914 0.7584 ²⁰	H ₂ O 1; EtOH 3; eth 3; ace 1.4300 ²⁰
5336	2-Dodecenedioic acid, (E)- Traumatic acid	C ₁₂ H ₂₀ O ₄ 228.29	6402-36-4 165.5	9493	4-02-00-02279	eth 4; EtOH 4; chl 4
5337	2-Dodecenoic acid	C ₁₂ H ₂₂ O ₂ 198.31	4412-16-2 17.1	155 ³ , 127 ^{0.15}	4-02-00-01619 0.9265 ²⁰	1.4629 ²⁵
5338	4-Dodecenoic acid Lindenic acid	C ₁₂ H ₂₂ O ₂ 198.31	505-92-0 1.3	171 ¹³	4-02-00-01619 0.9081 ¹⁵	bz 4; eth 4; chl 4 1.4529 ²⁰
5339	5-Dodecenoic acid	C ₁₂ H ₂₂ O ₂ 198.31	2761-84-4 1.3	170-21 ³	4-02-00-01619 0.9081 ²⁰	
5340	11-Dodecenoic acid	C ₁₂ H ₂₂ O ₂ 198.31	65423-25-8 20	171 ¹³ , 144 ³	4-02-00-01618 0.9014 ²⁰	1.4510 ²⁰
5341	11-Dodecenoic acid, methyl ester Methyl 11-dodecenoate	C ₁₃ H ₂₄ O ₂ 212.33	29972-79-0	136-91 ³	4-02-00-01618 0.8789 ²²	1.4414 ²⁰
5342	1-Dodecen-3-yne	C ₁₂ H ₂₀ 164.29	74744-36-8	78 ⁴	4-01-00-01112 0.7858 ²⁵	1.4510 ²⁵
5343	1-Dodecyne Decylacetylene	C ₁₂ H ₂₂ 166.31	765-03-7 -19	215	4-01-00-01066 0.7788 ²⁰	1.4340 ²⁰
5344	2-Dodecyne	C ₁₂ H ₂₂ 166.31	629-49-2 -9	105 ¹⁵	0-01-00-00261 0.7917 ¹⁵	1.4828 ²⁰
5345	3-Dodecyne	C ₁₂ H ₂₂ 166.31	6790-27-8	95 ¹²	3-01-00-01025 0.7871 ²⁰	ace 4; eth 4 1.4442 ²⁰